

# **DEMOLITION DERBY -4 PLAYER TO SARGE-2 PLAYER**

## **Field Conversion Kit Instructions**

**FOR UPRIGHT ISLAND  
MAINFRAME MODEL**

*Bally*

MIDWAY MFG. CO.

10601 W Belmont Avenue  
Franklin Park, Illinois 60131  
U.S.A.



Phone (312) 451-9200 Cable Address MIDCO Telex No.: 72-1596

**WARNING**

**THIS GAME MUST BE GROUNDED. FAILURE TO DO SO MAY  
RESULT IN DESTRUCTION TO ELECTRONIC COMPONENTS.**

**WARNING:** This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a CLASS A computing device pursuant to SUBPART J of PART 15 of FCC RULES, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

**ELECTRICAL BULLETIN: FOR ALL APPARATUS COVERED BY THE CANADIAN STANDARDS ASSOCIATION (CSA) STANDARD C22.2 NO. 1, WHICH EMPLOYS A SUPPLY CORD TERMINATED WITH A POLARIZED 2-PRONG ATTACHMENT PLUG.**

**CAUTION:** TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

**ATTENTION:** POUR PREVENIR CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR. UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

**Bally/MIDWAY**  
T.M.

*Invites You To Use*

**OUR TOLL FREE NUMBER FOR  
SERVICE INFORMATION CONCERNING THIS GAME, OR ANY  
OTHER BALLY/MIDWAY™ GAME YOU NOW HAVE ON LOCATION.**

**CALL US FOR PROMPT, COURTEOUS  
ANSWERS TO YOUR PROBLEMS.**

**Video or Pinball - Continental U.S. 800-323-7182**

**Bally/MIDWAY**  
T.M.

10601 West Belmont Avenue Franklin Park, Illinois, 60131 phone (312) 451-9200

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## W A R N I N G

The parts contained in this field conversion kit must be installed without deviation from the instructions contained in this manual and kit. Failure to follow these instructions in every detail may result in the creation of illegal interference to radio and TV reception.

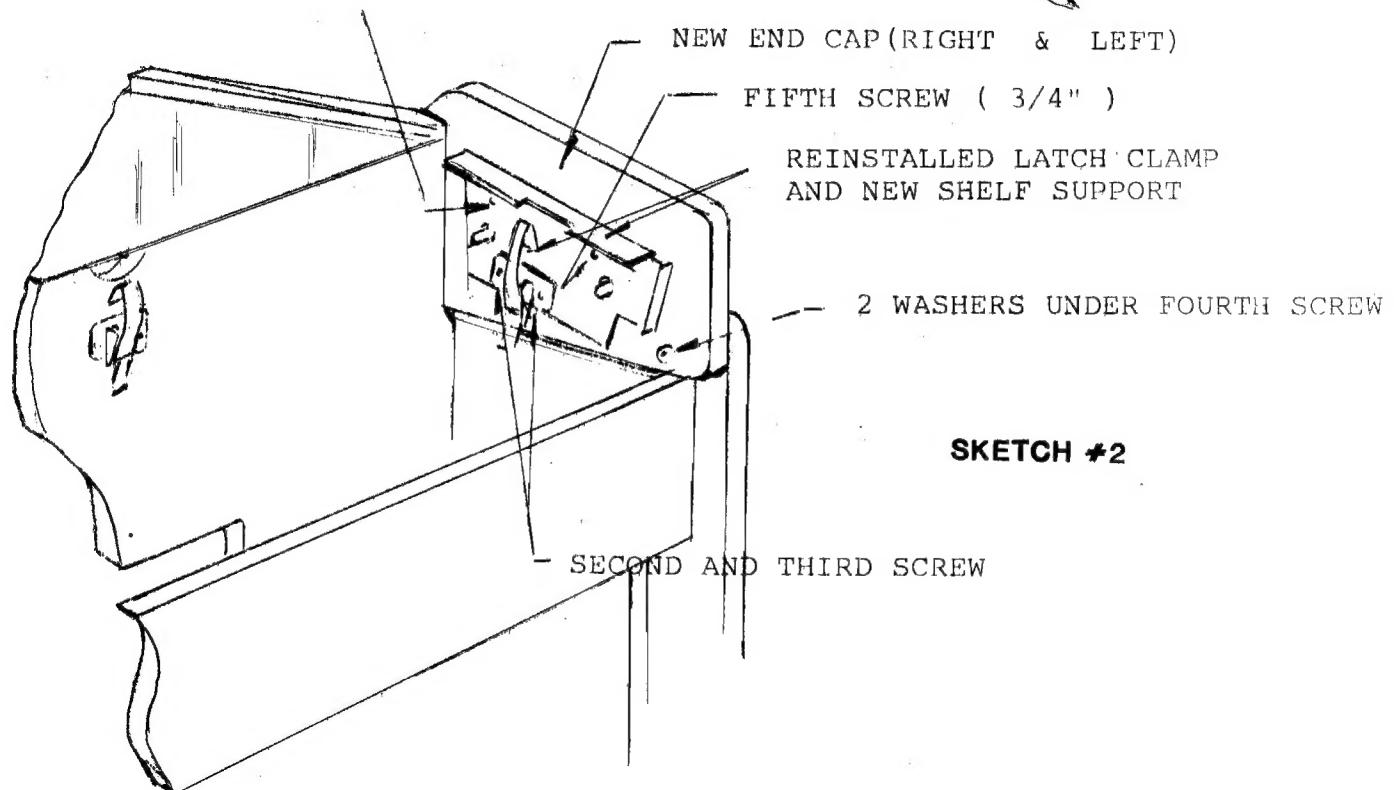
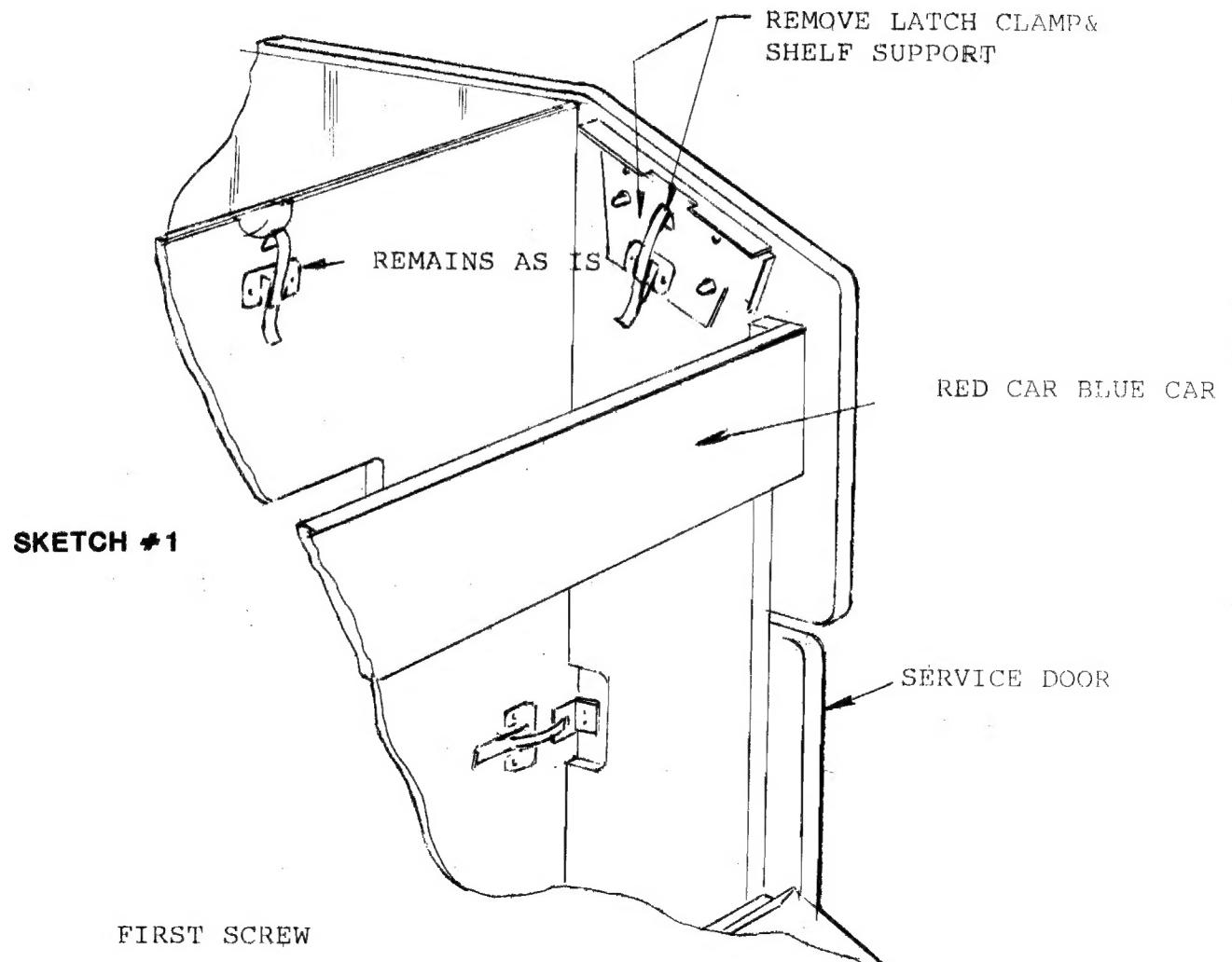
BALLY MIDWAY has verified that this field conversion kit, when installed in the game(s) specified in this manual, complies with the requirements in Part 15 of the FCC rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception, requiring the operator to take whatever steps are necessary to correct the interference.

BALLY MIDWAY will not be responsible for incomplete or improper conversions, or installation in a game for which this field conversion kit is not intended. If this field conversion kit is installed in a game that is not specified in this manual or in a previously converted game, the operator is required to take whatever steps are necessary to insure compliance with the requirements in Part 15, Subpart J, of the FCC Rules for a Class A computing device.

## S P E C I A L   N O T E:

THE PARTS REMOVED, WHILE MAKING MODIFICATIONS  
EXPLAINED IN THIS MANUAL, WILL NOT BE REUSED  
IN FUTURE GAME CONVERSION KITS.

The word "discard", as used in this manual, makes reference to this fact. All parts removed may be considered usable for other purposes.



**TO CONVERT "DEMOLITION DERBY" 4 PLAYER UNIT INTO A 2 PLAYER "SARGE", FOLLOW THE STEPS AS OUTLINED BELOW:**

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**GREEN/YELLOW CAR CONTROL PANEL REMOVAL & REPLACEMENT**

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**NOTE:** The two player SARGE will use the Blue Car/Red Car end for mounting the new control shelf. A blank cover will replace the control panel on the Green Car/Yellow Car end of the cabinet.

**Step 1: Removing Green/Yellow Car Control Panel**

- A.)** Unlatch the Green Car/Yellow Car control panel and open.
- B.)** Disconnect all cable clamps and cable connector blocks leading to the control panel.
- C.)** Remove all control panel hinge screws and remove control panel.

**Step 2: Removing Green/Yellow Car Coin Acceptors**

- A.)** To remove coin acceptors, begin by removing cable clamps, connector blocks and bayonet connectors at the speaker.
- B.)** Cut both wires to the slam switch at the lock.
- C.)** Remove the trip switch from the acceptor on the YELLOW side. This will ease removal of both acceptors and cable without soldering.
- D.)** Remove carriage bolts, nuts and washers. Save for Step 3.

**Step 3: Installing Coin Acceptor Cover Plate**

- A.)** Using kit furnished cover plate, attach by using bolts, nuts and washers taken from coin acceptor plate. NO WASHERS are required at the top two bolts.

**Step 4: Installing Control Shelf Cover Plate**

- A.)** To install blank cover, put in place kit furnished cover, and latch lock. This completes the new non-playable end of the unit.

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**BLUE/RED CAR CONTROL PANEL REMOVAL & REPLACEMENT**

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**Step 1: Removing Blue/Red Car Control Panel**

- A.)** Unlatch, open and disconnect all cable clamps and connectors leading to the control shelf.
- B.)** Remove hinge retaining screws and remove shelf. Save screws for further use.
- C.)** Remove four screws from each of the shelf support brackets. Save latching clamps. (See Sketch #1)

**NOTE:** Do NOT remove plastic locating pins in the cabinet sides.

**Step 2: Mounting New "Sarge" Control Panel**

- A.)** To mount new end caps, position part onto the plastic pins left in place. New end caps have additional pins that repositions the new shelf support and is pre-drilled for easy attachment.
- B.)** "C" clamp the end cap and support bracket to the cabinet side and attach with the first  $1\frac{1}{2}$ " screw. (See Sketch #2)
- C.)** Remount the shelf latch with 2nd and 3rd  $1\frac{1}{2}$ " screws.
- D.)** The fourth pre-drilled hole requires two washers under the fourth  $1\frac{1}{2}$ " screw.

- E.) The last remaining hole in the shelf support uses a short 3/4" screw removed from the hinge on the opposite end. (see Step 1, Item C under Green Car/Yellow Car)
- F.) Repeat the above procedure for the other side.
- G.) To attach SARGE control shelf, place offset hinge (similar to Demolition Derby) and fasten with previously removed screws.

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#### **REMOVAL AND MODIFICATION OF PRINTED CIRCUIT BOARDS**

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The MCRIII Logic P.C. Board Assembly and the Turbo Cheap Squeak Sound P.C. Board will both require the re-installation of new E-PROMs. The kit includes the E-PROMs necessary to complete the modification. Please read through the following instructions carefully to prevent any damage to the components involved.

##### **Step 1: Removing The MCRIII Logic P.C. Board Assembly**

- A.) Open the service door and locate the MCRIII Logic P.C. Board Assembly mounted to the right inside wall of the cabinet.
- B.) Disconnect all cables from the end of the p.c. board assembly closest to the service door you have just removed.
- C.) Loosen the top two hold-down screws and lift up on the p.c. board until the whole assembly can be pulled away from the inside wall of the cabinet.
- D.) Carefully pull the p.c. board assembly out of the cabinet until the power supply cable, connected to the assembly, is exposed.
- E.) Disconnect this cable and finish removing the p.c. board assembly.

##### **Step 2: Removing The Turbo Cheap Squeak Sound P.C. Board**

- A.) Locate the Turbo Cheap Squeak Sound P.C.B. mounted on the inside wall of the cabinet.
- B.) Loosen and remove all mounting screws and carefully remove p.c. board from cabinet.

**NOTE:** Now that you have the MCRIII Logic P.C. Board Assembly and the Turbo Cheap Squeak Sound P.C.B. removed from the cabinet, place them both on a flat clean work surface for further disassembly.

##### **Step 3: Disassembling The MCRIII Logic P.C. Board Assembly**

- A.) Place the MCRIII Logic P.C. Board Assembly face down, exposing the metal shielding plate on its backside.
- B.) Loosen and remove all screws securing the first metal plate to the assembly.
- C.) Lift the metal plate off the p.c. board assembly and place on the side.
- D.) Once this metal plate has been removed, the backside of a printed circuit board will be exposed.
- E.) Lift and fold this p.c. board over to the side, laying it face-up (E-PROM side up) and exposing the second metal plate in the p.c. board assembly.
- F.) Loosen and remove all screws securing the second metal plate to the assembly.
- G.) Lift this metal plate off the p.c. board assembly and place on the side.
- H.) Once you have removed the second metal plate, another p.c. board will be exposed.



#### Step 4: Installing The New "Sarge" Program Code

- A.) With the two sections of the MCRIII P.C. Board Assembly lying face-up, (E-PROM side up), locate the E-PROMs. To replace these E-PROMs with the new E-PROMs supplied in the kit, refer to the parts list on page 10 and label information on each E-PROM.

**NOTE:** The next steps of this procedure **must** be conducted with extreme care to avoid damaging the program stored in the E-PROMs you are about to replace. We suggest **every** precaution listed to avoid problems. If they are exposed to it, the smallest amount of static electricity can permanently damage the program stored in the E-PROMs.

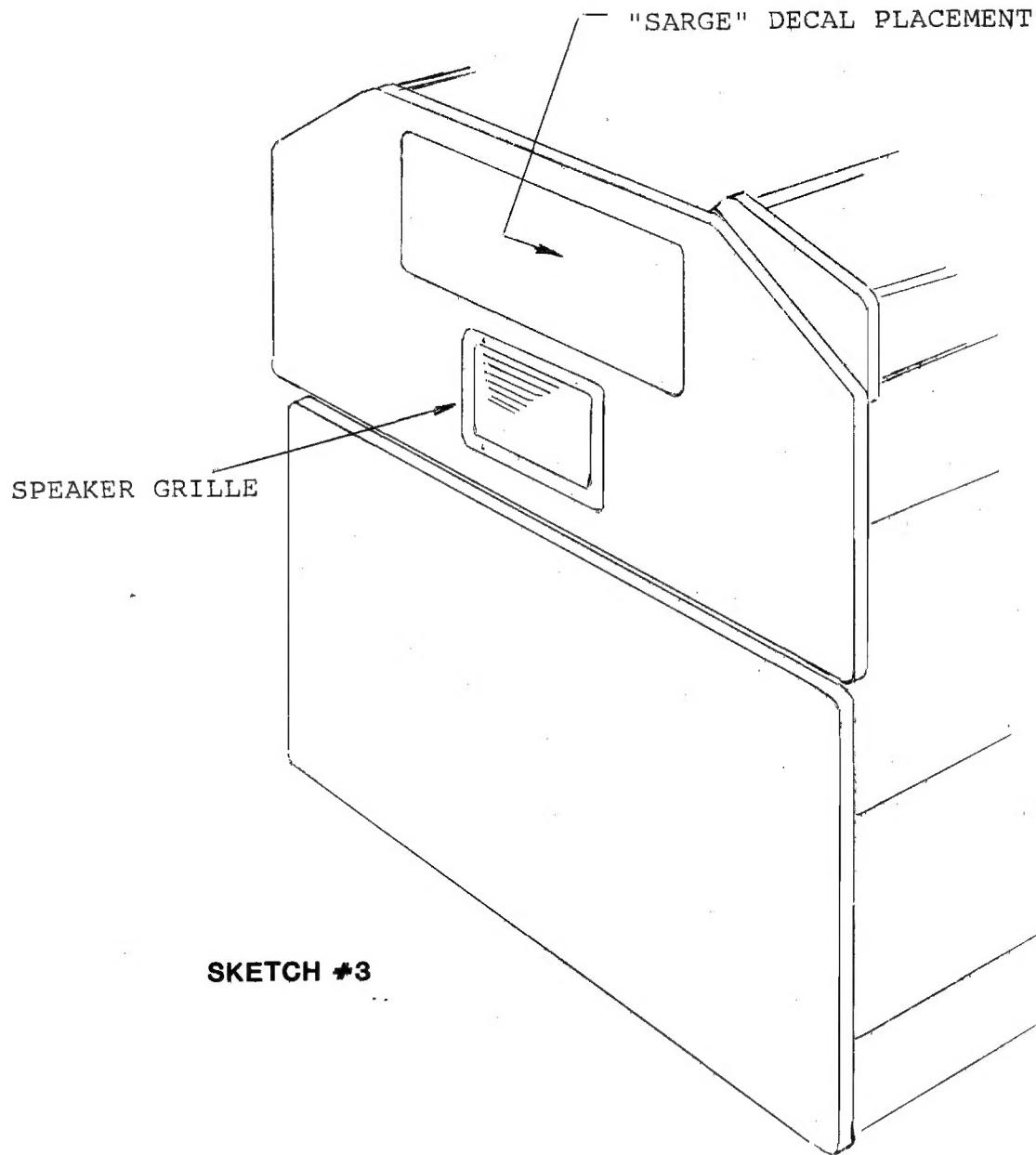
- B.) Ground yourself BEFORE handling each E-PROM. This can be accomplished in many ways. For example, if you are working next to a game cabinet and if it is still plugged into the wall outlet, just touch the ground strap you removed from the p.c. board assembly. You could also touch the metal center screw which holds the plug plate in place over the wall outlet or you could touch the grounding strap of your work bench, if that is where you will be conducting the modifications.
- C.) Gently work a small screwdriver under the E-PROM you want to remove. At the same time, grasp it with your other hand and lift gently. Guide it out of the socket in this manner to help avoid damaging the E-PROM's pins and the pins of its socket.
- D.) Set the removed E-PROM aside.
- E.) Ground yourself again.
- F.) Pick up the replacement E-PROM and install it into the socket you just emptied. Avoid, as much as possible, touching the E-PROM's pins.

**WARNING:**

The notch at one end of the E-PROM **MUST** be matched with the end of its intended socket, which contains a similar notch. If you put the E-PROM in its socket backward and turn on the power to the game, you will destroy it.

#### Step 5: Reassembling & Installing Modified Printed Circuit Boards

- A.) Reverse the steps described on the preceding pages to reassemble the modified unit.



## DECAL INSTALLATION INSTRUCTIONS

### IMPORTANT NOTE:

READ THE FOLLOWING INSTRUCTIONS THROUGH COMPLETELY AT LEAST ONCE BEFORE ATTEMPTING TO INSTALL THE DECAL(S) THEY CONCERN!!

THE DECAL(S) ARE COMPOSED OF THREE (3) PARTS: 1)A HEAVY WAXED BACKING SHEET WHICH COVERS THE STICKY SIDE OF THE DECAL, 2) THE DECAL ITSELF, AND 3)A THIN MASKING SHEET WHICH IS ON THE FRONT SIDE OF THE DECAL TO PROTECT IT AND TO AID IN ITS INSTALLATION.

\* \* \* \* \* \* \* \* \* \* \* \* \* TO INSTALL THE DECAL(S), PROCEED AS FOLLOWS: \* \* \* \* \* \* \* \* \* \*

1. BE SURE THE AREA WHERE YOU ARE GOING TO APPLY THE DECAL IS CLEAN AND FREE OF ALL DIRT, GREASE, AND GRIME.
2. USING ANY SPRAY-ON GLASS CLEANER, THOROUGHLY WET DOWN THE AREA WHERE YOU INTEND TO PUT THE DECAL.
3. REMOVE THE **HEAVY WAXED BACKING SHEET** FROM THE DECAL BY POSITIONING IT FACE UP ON A FLAT SURFACE; GOING TO **ANY CORNER**; AND BENDING THIS CORNER UP SLIGHTLY TO SEPARATE THE DECAL AND THIN MASKING SHEET FROM THE **HEAVY WAXED BACKING SHEET**.
4. **SLOWLY AND CAREFULLY** PEEL THE HEAVY WAXED BACKING SHEET AWAY FROM THE DECAL AND MASKING SHEET.
5. PLACE THE DECAL ON THE GAME CABINET **OVER** THE **WET** GLASS CLEANER YOU JUST APPLIED. (THIS WILL ALLOW A **SMALL** AMOUNT OF FINAL POSITIONING TO BE DONE AFTER THE DECAL IS APPLIED TO THE GAME CABINET.)
6. SMOOTH THE DECAL.
7. ALLOW THE DECAL TO BECOME FIRMLY AFFIXED TO THE GAME **BEFORE** PROCEEDING TO THE NEXT STEP.
8. REMOVE THE **THIN MASKING SHEET** FROM THE DECAL AT THIS TIME BY MOISTENING IT WITH A WET CLOTH OR SPONGE. RUB WITH FINGER TIPS (**NOT NAILS**) FROM A CORNER EDGE TOWARD ITS CENTER. PEEL THE THIN MASKING SHEET BACK OVER ITSELF TO REMOVE IT. **DO NOT PULL IT STRAIGHT AWAY FROM THE CABINET.**

S A R G E

O P T I O N   S W I T C H   S E T T I N G S

//////////////////SWITCH NO. 2 - AT A 13 - LOCATED ON MONOBOARD//////////////////

DURING GAME PLAY:	<u>SW#1</u> NOT USED	<u>SW#2</u> NOT USED	<u>SW#3</u> NOT USED	<u>SW#4</u>	<u>SW#5</u>	<u>SW#6</u>	<u>SW#7</u> NOT USED	<u>SW#8</u> NOT USED	<u>SW#9</u> NOT USED	<u>SW#10</u>
** NO FREE PLAY FREE PLAY				OFF			ON			
** 1 COIN / 1 CREDIT 2 COINS/ 1 CREDIT 1 COIN / 2 CREDITS				OFF	OFF		ON	OFF		
** NORMAL OPERATION FREEZE VIDEO									OFF	ON

PART NO. M051-00B88-B007

THE REMAINDER OF YOUR NEW GAME'S MOST COMMON OPTION SETTINGS  
ARE CONDUCTED DURING YOUR GAME'S SELF-TEST MODE

**LIST OF MAJOR PARTS  
INCLUDED IN YOUR FIELD CONVERSION KIT FOR  
CONVERTING DEMOLITION DERBY U.R. 4-PLAYER TO SARGE U.R. 2-PLAYER**

ITEM	PART NO.	DESCRIPTION
1	AE39-00004-0000	CONTROL SHELF ASSY. (INCLUDES ITEMS 1A THRU 1P)
1A	AA57-00022-0100	TRIGGER SWITCH ASSY.-RIGHT (2 REQ'D.)
1AA	AA57-00028-0000	BUTTON SWITCH ASSY.-RIGHT
1AB	AA57-00029-0000	SWITCH-ASSY: TRIGGER
1AC	0A57-00104-0100	BRKT.-SWITCH RIGHT
1AD	0020-00243-0000	PLATE: SPRING (2 REQ'D.)
1B	AA57-00022-0200	TRIGGER SWITCH ASSY.-LEFT (2 REQ'D.)
1BA	AA57-00028-0100	BUTTON SWITCH ASSY.-LEFT
1BB	AA57-00029-0000	SWITCH-ASSY: TRIGGER
1BC	0A57-00104-0200	BRKT.-SWITCH RIGHT
1BD	0020-00243-0000	PLATE: SPRING (2 REQ'D.)
1C	AB88-00012-0000	CONTROL-ASSY. (4 REQ'D.)
1CA	AA57-00012-0000	CONTROL BRKT. & BEARING ASSY.
1CB	AA57-00013-0000	BRKT., RUSHING & BEARING ASSY.
1CC	AA57-00032-0000	CONTROL GRIP CABLE ASSY.
1CD	A941-00022-0100	ROLLER SWITCH ASSY.-LEFT
1CE	A941-00022-0200	ROLLER SWITCH ASSY.-RIGHT
1CF	0A57-00703-00XF	PIN: SPRING
1CG	0A57-00902-00XF	TUBING: GRIP
1CH	0010-00602-0000	SPRING: EXTENSION
1CI	0941-00108-0000	BRKT.: SWITCH

**LIST OF MAJOR PARTS (CONT'D.)**  
**INCLUDED IN YOUR FIELD CONVERSION KIT FOR**  
**CONVERTING DEMOLITION DERRY U.R. 4-PLAYER TO SARGE U.R. 2-PLAYER**

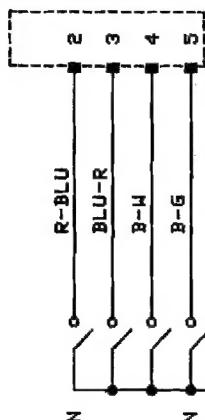
ITEM	PART NO.	DESCRIPTION
1CJ	0941-00109-0000	ACTUATOR: SWITCH
1CK	0941-00702-00XF	PIVOT - PIN
1CL	0941-00704-00XF	SPACER
1CM	0941-00905-0000	BUMPER: RUBBER
1D	AE39-00005-0000	CONTROL SHELF CABLE ASSY.
1E	AE39-00006-00XF	CONTROL SHELF-WELD ASSY.
1F	0A57-00904-0000	SLIDE (4 REQ'D.)
1G	0A57-00908-00XF	PUSH BUTTON: RED (4 REQ'D.)
1H	0A57-00910-0100	GRIP: RIGHT (2 REQ'D.)
1I	0A57-00910-0200	GRIP: LEFT (2 REQ'D.)
1J	0E39-00900-0000	OVERLAY: CONTROL SHELF
1K	0017-00032-0093	SWITCH: W/HOLDER, WHITE (2 REQ'D.)
1L	0017-00042-0256	PUSH BUTTON - ROUND: RED
1M	0017-00042-0262	PUSH BUTTON - ROUND: BLUE
1N	0307-00908-0000	TRIGGER MOLDED (4 REQ'D.)
1O	0307-00925-0100	GRIP: OUTSIDE - RT. SIDE / RT. HAND (2 REQ'D.)
1P	0307-00925-0200	GRIP: OUTSIDE- LT. SIDE / LT. HAND (2 REQ'D.)
2	AE39-00007-00XF	CONTROL COVER ASSY. (BLANK)
3	AE39-00008-0100	END CAP & PIN ASSY.-RIGHT
4	AE39-00008-0200	END CAP & PIN ASSY.-LEFT
5	AE39-00300-0000	INSTRUCTION SHEET & BAG ASSY.

**LIST OF MAJOR PARTS (CONT'D.)**  
**INCLUDED IN YOUR FIELD CONVERSION KIT FOR**  
**CONVERTING DEMOLITION DERBY U.R. 4-PLAYER TO SARGE U.R. 2-PLAYER**

ITEM	PART NO.	DESCRIPTION
5A	FORM-00041-8005	POST CARD: CUSTOMER REPLY
5B	M051-00E39-A007	TAG: OPTION SWITCH SETTINGS
5C	M051-00E39-A009	INSTRUCTION MANUAL
6	E39A-22AAE-AXRD	EPROM: 2764 (POSITION "5F" ON 5 MHZ. C.P.U. BD.)
7	E39A-22AAE-BXRD	EPROM: 2764 (POSITION "6F" ON 5 MHZ. C.P.U. BD.)
8	E39A-42AAE-JX4D	EPROM: 27128 (POSITION "1C" ON 5 MHZ. C.P.U. BD.)
9	E39A-42AAE-KX4D	EPROM: 27128 (POSITION "2C" ON 5 MHZ. C.P.U. BD.)
10	E39A-42AAE-LX4D	EPROM: 27128 (POSITION "3C" ON 5 MHZ. C.P.U. BD.)
11	E39A-42AAE-MX4D	EPROM: 27128 (POSITION "4C" ON MHZ. C.P.U. BD.)
12	E39A-22AAE-CXRD	EPROM: 2764 (POSITION "U4" ON TURBO CHEAP SQK. BD.)
13	E39A-22AAE-DXRD	EPROM: 2764 (POSITION "U5" ON TURBO CHEAP SQK. BD.)
14	E39A-42AAE-AX4D	EPROM: 27128 (POSITION "1A" ON SUPER VIDEO GEN. BD.)
15	E39A-42AAE-BX4D	EPROM: 27128 (POSITION "2A" ON SUPER VIDEO GEN. BD.)
16	E39A-42AAE-CX4D	EPROM: 27128 (POSITION "3A" ON SUPER VIDEO GEN. BD.)
17	E39A-42AAE-DX4D	EPROM: 27128 (POSITION "4A" ON SUPER VIDEO GEN. BD.)
18	E39A-42AAE-EX4D	EPROM: 27128 (POSITION "5A" ON SUPER VIDEO GEN. BD.)
19	E39A-42AAE-FX4D	EPROM: 27128 (POSITION "6A" ON SUPER VIDEO GEN. BD.)
20	E39A-42AAE-GX4D	EPROM: 27128 (POSITION "7A" ON SUPER VIDEO GEN. BD.)
21	E39A-42AAE-HX4D	EPROM: 27128 (POSITION "8A" ON SUPER VIDEO GEN. BD.)
22	0E39-00901-0000	DECAL (2 REQ'D.)
23	0017-00009-0629	PAINT: SATIN BLACK 1/2 PINT CAN

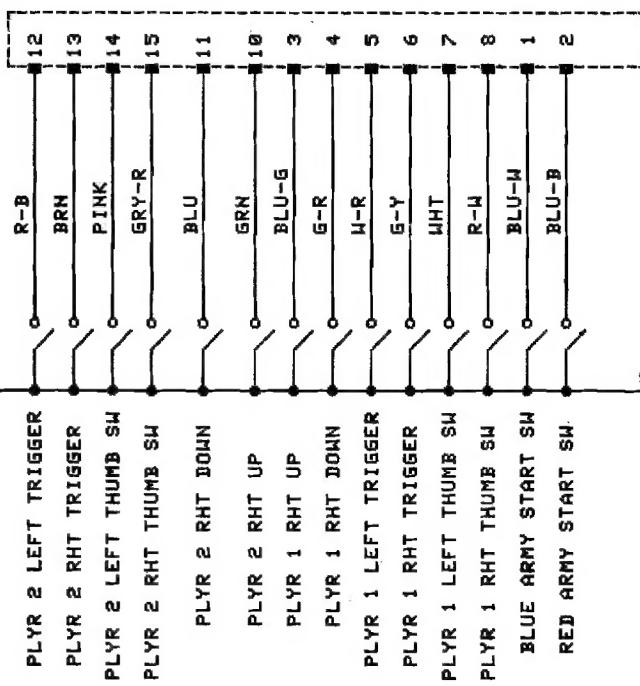
TO EXISTING CONTROL CABLE CONNECTORS ON THE MASTER CABLE

6 POS CAP/MALE PINS



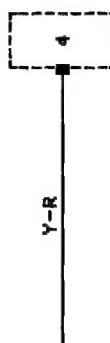
PLYR 1 LEFT DOWN  
PLYR 1 LEFT UP  
PLYR 2 LEFT UP  
PLYR 2 LEFT DOWN

15 POS CAP/MALE PINS



PLYR 2 LEFT TRIGGER  
PLYR 2 RHT TRIGGER  
PLYR 2 LEFT THUMB SW  
PLYR 2 RHT THUMB SW  
PLYR 2 RHT DOWN  
PLYR 2 RHT UP  
PLYR 1 RHT UP  
PLYR 1 RHT DOWN  
PLYR 1 LEFT TRIGGER  
PLYR 1 RHT THUMB SW  
PLYR 1 LEFT THUMB SW  
BLUE ARMY START SW  
RED ARMY START SW

4 POS CAP/MALE PINS



NOTES: V CAPORUSSO	BALLY MIDWAY MFG. CO.
	SARGE CONVERSION FROM DEMOLITION DERBY 4 PLYR M051-00B88-A003
	SHEET 1 OF 1 REV B